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# Combat Crew

Strategic Air Command

OCTOBER 1983

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# Combat Crew

**GEN BENNIE L. DAVIS**
COMMANDER IN CHIEF, SAC

BRIG GEN JACK K. FARRIS
INSPECTOR GENERAL

COL CHARLES J. WINGERT
DIRECTOR OF SAFETY

## STAFF

***EDITOR***
MAJ. RANDY LAUTERBACH

***ASSOCIATE EDITOR***
KEN MAASSEN

***ART EDITOR***
SGT. STEVE PARRISH

***EDITORIAL ASSISTANT***
M. J. ABBOUD

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### On Our Cover

Winter season is fast approaching and with it all SAC crews will be concentrating on cold weather procedures. For more see articles on pages 4 and 14.

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# Combating

It is appropriate that this issue of Combat Crew coincides with the start of a new fiscal year. The services have stated their need for funds to operate and maintain new and existing weapon systems. At the time of this writing we do not know the funds breakout by weapon system because Congress has not acted on the Fiscal Year 1984 Appropriations Bill. However, we do expect a good percentage will go to spare parts to support aircraft and missile systems.

As the Defense budget is continuously subjected to close scrutiny, we all have an obligation to be sure our resource dollars are used wisely. One avenue that is open for everyone's use and helps achieve this goal is the Air Force Zero Overpricing Program (ZOP).

ZOP has been around since 1979 and has recently received additional attention. One reason is that the news media over recent months have highlighted many examples of overpriced spare parts. ZOP is a relatively simple program, open to participation by all and offers significant opportunities and benefits, both professionally and personally. Its cornerstone rests with individuals who suspect items may be overpriced. All kinds of items received through the supply system are subject to zero overpricing challenges, from flying gloves to million dollar spare parts.

Strategic Air Command has had good success with the program as exemplified by our efforts to reduce the prices of 170 Air Launched Cruise Missile (ALCM) items. The maintenance folks at Griffiss AFB and Wurtsmith AFB began questioning the price of spare parts and the impact these prices were having on their Operations and Maintenance (O&M) budgets. Because of their alertness and action the prices on 69 line items have been reduced. Of equal importance is the fact that about $157,000 have been returned to the O&M coffers

# High Prices

at Griffiss and Wurtsmith. This amount represents the overcharges to the budgets because the items were improperly overpriced.

ZOP's most important element is **you.** Your participation makes ZOP a successful program. The Zero Overpricing Program encourages everyone to challenge anything they suspect is overpriced. The process is a simple one that begins by you contacting the Customer Liaison Office in Base Supply. Supply records some information from you, the challenger, and takes it from there. If your challenge confirms an actual case of an item being overpriced, you will be recognized through the Air Force Suggestion Program. Between 1 Jun 82 and 31 May 83, 109 of 1100 ZOP challenges in SAC alone resulted in price reductions and almost $11,000 was awarded to participants through the suggestion program.

Zero Overpricing is the Air Force's name for a DOD wide initiative. Secretary of Defense Caspar W. Weinberger recently publicized his ten-point program dealing with spare parts procurement.

The ten points are summarized as:

**One:** Offer incentives to increase competitive bidding and reward employees who pursue cost savings.

**Two:** Reprimand, demote, or dismiss those who are negligent in implementing these procedures.

**Three:** Alert defense contractors of our firm intention to control prices and pursue fair pricing practices.

**Four:** Challenge purchase orders which are not made competitively or appear to be excessively priced.

**Five:** Refuse to pay unjustified price increases.

**Six:** Reform our basic contract procedures to encourage competition, preclude overpricing, and provide legal right to recover excessive payments from contractors.

Brig Gen John J. Doran, Jr.
Deputy Chief of Staff, Logistics

**Seven:** Obtain refunds from contractors for overcharges and, if necessary, sue to recover unjustified payments.

**Eight:** Whenever possible, cease doing business with contractors who are guilty of unjustified prices and who refuse to refund overcharges.

**Nine:** Continue audits and investigations on spare parts acquisitions.

**Ten:** Ensure that the taxpayers' money is not wasted, and expose those contractors engaging in excess pricing practices.

The drive to be charged "fair" prices is a priority effort within all of DOD. Through your personal involvement and Secretary Weinberger's 10-point program, we will be able to further expose fraudulent activities, correct errors, and use our tax dollars wisely. Remember, if you suspect or detect a case of overpricing, contact the Base Supply Customer Liaison Office. Confirmed cases of overpricing will conserve O&M dollars at your base as well as at other bases using the same item — resulting in more dollars to support operational missions. Your effort will be of direct benefit to our government and you personally could benefit through ZOP participation. THINK ZERO OVERPRICING.

# A Winter Lesson

Capt Wayne G. Terry
1Lt Debra L. Terry
11 AREFS, Altus AFB

Ice crystals sparkling in sunlight, a snow covered landscape, sleigh bells and songs — a beautiful winter scene to be enjoyed — until — it comes time to climb aboard that aerospace vehicle and "slip the surlies." Now, snow, sleet, slush and ice can become lethal hazards.

To emphasize the realities and provide a basis of reference, the Air Florida flight 90 accident of January 1982 will be analyzed and its lessons applied to our operations. The information presented is extracted from the National Transportation Safety Board's (NTSB) report on the accident. Briefly, flight 90 was a Boeing 737 scheduled to depart Washington National Airport at 1415 for Tampa, Florida. Seventy-four passengers and a crew of five were on board. The weather was moderate to heavy snow with three-eighths mile visibility.

The tragic chain of events began with the improper deicing of the aircraft while it was still at the gate. Boeing recommends using long-handled brooms to remove snow from wings and empennage areas because the melted snow can refreeze when it is removed using deicing fluid. The ground personnel, who were unfamiliar with the specific deicing procedures for the 737, were unaware of this recommendation and began the deicing while one-half inch of wet snow covered the aircraft. Also, no covers or plugs were installed over the engines or airframe openings during deicing — this could have contributed to later events for if deicing fluid gets into pitot tubes or PT2 probes (EPR), when heat is applied it causes the glycol/water mixture to evaporate, leaving a viscous residue which is likely to disturb their proper operation.

After the deicing/anti-icing was completed at 1510, neither pilot inspected the aircraft from the outside for remaining snow or ice contamination as good practice would dictate. Therefore, the flight crew's assessment of the aircraft's condition was based entirely on their discussions with maintenance personnel and any observations made from the cockpit. Also, there was no discussion of how long the deicing would be effective with precipitation present; as additional moisture combines with the deicing fluid on the aircraft surfaces it dilutes the mixture and decreases the effective time of protection. The 135 Dash One states "Takeoff should be made within 30 minutes of application." However, this 30 minute window should not be accepted as a hard and fast rule as it does not account for variables such as the percentage of glycol/water nor if precipitation is present. Flight 90 remained parked at the gate 25 minutes after deicing was completed before it received clearance to taxi. It was 1535 and snow was still falling.

As flight 90 began its taxi for takeoff, the flight crew was completing the "after start" checklist. One critical checklist item was engine anti-ice. Although the 737 flight manual prescribes that the engine inlet anti-ice system shall be on when icing conditions exist or are anticipated during takeoff and initial climb, the crew's response to "anti-ice" was "Off." The

response seemed without hesitation and there was no discussion regarding the existing weather conditions. The 737 flight manual defines icing conditions much the same as we in SAC have learned it: "Air temperature below 46.4°F and visible moisture such as fog, rain or wet snow present." After the checklist response, there was no further mention of engine anti-ice by the flight crew.

Flight 90 continued to taxi until it fell in line for departure behind a New York Air DC-9. A half hour had passed since deicing had been completed and apparently the captain intentionally taxied the aircraft very close to the DC-9's exhaust flow in an attempt to melt the aircraft's rapidly accumulating snow. The NTSB believes that the heat of the exhaust gases may have turned snow, which otherwise might have blown off during takeoff, into a slushy mixture. The mixture then froze on the wing leading edges and the engine inlet nose cone.

At 1549 came the first indication that the first officer was suspicious of the EPR gauge indications. He said, "See this difference in the left and right one?" The captain replied simply, "Yeah." The first officer continued "I don't know why that's different, unless it's hot air going into that right one. That must be it. From his exhaust. It was doing that at the chocks awhile ago." Two minutes later the first officer remarked, "This thing's settled down a bit. Mighta been his hot air going over it." The NTSB believes the first officer was referring to an erratic EPR indication probably as a result of ice forming on the PT2 probe. When the probe was solidly blocked, the indications would stabilize as the first officer observed. Still, the thought of using engine anti-ice apparently never crossed the mind of either crewman.

In addition to the direction for use of engine anti-ice in icing conditions, the 135 Dash One offers supplemental instructions. While anti-ice is "On" and in severe icing conditions (such as heavy supercooled fog, freezing rain or snow), periodic engine runups to as high a thrust setting as practical, dependent upon taxiway conditions, should approximate a ten second duration at ten minute intervals. These runups minimize the buildup of ice that can form on engine inlet guide vanes and early stages of the compressors during extended ground operations even with anti-icing air on. Also, subsequent to takeoff under severe icing conditions, a static engine runup should be conducted and the EPR and EGT should be observed to assure normal engine operation. Had the flight 90 crew practiced these procedures, an air tragedy may have been avoided.

After the New York Air aircraft was cleared for takeoff, the flight 90 crew proceeded to accomplish the pretakeoff checklist, including verification to the takeoff EPR setting of 2.04, V$_1$ of 138 (our S1), rotation at 140 knots, and V$_2$ of 144 knots (takeoff safety speed — basically our old takeoff speed). The first officer was to perform the takeoff and the captain would perform the copilot duties. Just before takeoff clearance was issued, the first officer asked, "Slush runway, do you want me to do anything special for this or just go for it?" The captain was noncommital. "Unless you got anything special you'd like to do." The first officer replied, "Unless just takeoff the nosewheel early like a soft field takeoff or something. I'll take the nosewheel off and then we'll let it fly off." The crew should have used what the Boeing manual calls the "Improved Climb" procedure. This is essentially a liftoff and climbout at a higher than normal airspeed. This discussion was the extent of the "takeoff briefing." The briefing should have included a discussion of the coordination between the captain and first officer, which would have been required in case of an aborted takeoff, especially under the existing conditions.

As the flight 90 crew was completing the pretakeoff checklist, they received clearance to "taxi into position and hold." It was 1558:58 — almost 50 minutes since deicing was completed. As the aircraft was taxied, the tower transmitted the takeoff clearance and the captain acknowledged. At 1559:28, tower added, "No delay on departure if you will, traffic's two and a half for the runway." The last radio transmission from flight 90 was the reply "Okay" at 1559:46.

Also at 1559:46 the sound of engine spool-up was recorded by the cockpit voice recorder (CVR). At 1559:56 the captain commented, "Real cold, real cold" and at 1559:58 the first officer remarked, "God, look at that thing, that don't seem right, does it?" These comments are construed as observations of an EPR overshoot as the throttles were first set. Two seconds later, during the takeoff roll, the first officer again expressed concern, ". . . that's not right . . .," to which the captain responded, "Yes it is, there's eighty." "Naw, I don't think that's right," the first officer asserted once more. The first officer was referring perhaps to the aircraft's poor acceleration, the EPR readings, airspeed or the fuel flow indications. About nine seconds later, perhaps in deference to his captain's authority and greater experience, he amended his judgment by saying, ". . . maybe it is." But then two seconds later, after the captain called, "hundred and twenty," the first officer once again expressed doubt: "I don't know."

Eight seconds after the captain called, "Vee One" and two seconds after he called "Vee Two," the sound of the stickshaker was recorded. At 1600:45, the captain said, "Forward, forward" and at 1600:48, "We only want five hundred." At 1600:50, the captain continued, "Come on, forward, just barely climb." At 1601:00 the first officer said, **"Larry, we're going down, Larry," to which the captain responded, "I know it."**

About 1601, the aircraft struck the heavily congested northbound span of the 14th Street Bridge and plunged into the ice-covered Potomac River. The aircraft had climbed only 350 feet before stalling and had travelled approximately eight-tenths of a mile. Heavy snow continued to fall and visibility was varying between one-fourth to five-eighths mile. Of the 79 persons on board the aircraft, only five survived the crash. Four persons in automobiles on the bridge were killed.

The NTSB investigation of this accident was especially thorough and its findings were released on August 10, 1982. The Board concluded that the flight crew's failure to use engine anti-ice was a direct cause of the accident. A CVR sound spectrogram study confirmed that the engine rotational speed peaked and was immediately reduced to a value which corresponded to an actual EPR setting of 1.70 — the error resulting from the false reading due to the ice blocked $PT_2$ probe. Had the engine inlet $PT_2$ probes not been blocked by ice, the correct EPR values would have been indicated and the engines would have been set for and developed the proper thrust for takeoff and climb. An engineering simulation showed that even with the airframe ice/snow contamination, the additional thrust would have provided a positive performance margin for acceleration and climb following takeoff.

The Safety Board also found that the snow and ice on the wings of flight 90 significantly degraded the aircraft's aerodynamic performance and therefore concluded the flight crew's decision to takeoff with snow or ice on the wings to be a direct cause of the accident. There is conclusive evidence that the flight crew was aware that the top of the wings were covered with snow or slush. However, there is no indication that they attempted to ascertain the amount or character of the snow or slush on the wings before taxiing into takeoff position. The Board concluded that they should not have initiated take off with snow visible on the aircraft wings. The Federal Aviation regulations are very specific, requiring that "no person may take off in an aircraft when frost, snow, or ice is adhering to the wings, control surfaces or propellers of the aircraft." AFR 60-16 SAC supplement is equally explicit: "Do not take off until all ice and snow have been removed from the aircraft . . ." The 135 Dash One reiterates this theme with a Warning that snow and ice accumulations seriously affect takeoff and climbout performance, therefore ice and snow must be removed prior to takeoff.

The last direct cause of the accident that the NTSB investigated was the captain's failure to abort the takeoff while the aircraft was still at relatively low speeds when his attention was called to anomalous engine instrument readings. Although the first officer expressed his concerns several times, the captain apparently chose to ignore his comments and continue the takeoff. It is not necessary that a crew completely analyze a problem before aborting a takeoff roll. The problem can be analyzed before a second takeoff attempt. Do not hesitate to abort a takeoff if you feel that all instrument indications or takeoff sensations are not as they should be.

As you have read, the flight crew made several errors in judgment and violated technical data, whether intentionally or not, on numerous occasions. Their apparent disregard or lack of knowledge of the hazards of cold weather operations is clear beyond doubt. Knowledge and preparation are the keys to successful and safe operations under such adverse conditions. Hopefully this article will give you a new perspective during your review and preparation for when you yourself have to look Old Man Winter in the eye before you safely climb out of his grasp and encounter the sunshine above.

# Are You Really an Instructor Navigator?

Capt Gerald A. Benware
924 AREFS, Castle AFB

Your duty AFSC is K1535G, which gives you the duty title of unit instructor navigator KC-135. Your job description reads something like this: plans and assists in the execution of combat crew training and operational missions. You are charged with the responsibility of conducting ground and inflight instruction to prepare newly assigned navigators to perform combat aircrew duties.

Sounds impressive, doesn't it? But let's be honest with ourselves, how many of us do perform our duties like that or better yet, get the opportunity to perform our duties in such a way? When we reach that magic 500 hour plateau we start packing our bags for CFIC. When we get back to our home unit, we are all pumped up and ready to impress our vast navigational knowledge on anyone who is willing to listen. But all too often the enthusiasm fades away into the complacency of being an instructor navigator on a KC-135 crew, pulling alert every third week and logging IN duties every 90 days for currency.

Why does this happen? There are any number of reasons why our enthusiasm seems to fade. It could be caused by our own fear of failure, that someone will ask us a question that we are unable to answer. It could also be caused, through no fault of our own, by the unit's mission requirements. When we come off alert there are only a limited number of days for us to fly and to accomplish our requirements so that we stay mission ready. But one of the biggest reasons why our eagerness to instruct disappears is because we tend to lose sight of the meaning of instructor navigator.

This may happen quickly to some of us or it may take some time to wear down even the most dedicated instructor. As instructors, we tend to lose sight of the meaning "instructor" and as navigators, we come to fear the new meaning of "instructor." Try to think back to that time in your career when you were not an instructor. You went in to mission plan for the next day's flight and you discovered that an "instructor navigator" was going to fly with you. Most of the time your reaction was, "What did I screw up to get an 'instructor navigator' to fly with me?"

As instructor navigators, we may have a tendency to show this type of an attitude when we fly with another navigator. "He had an unreliable nav leg last mission so I am going to come along to observe him." As good instructors, we should try not to be evaluators. We should try to put the other navigator at ease and not treat him as a "student" and make him feel as if he is back at Mather but should treat him as an equal.

At the same time, units should be trying to utilize their instructor navigators in a more constructive role. Instead of giving us the sole function of giving corrective action and flying with the new guy in the squadron, units should try to change the image of the unit instructor navigator so that all navigators could look forward to flying with an IN as a learning experience and not as a punishment. All too often we only try to find things done wrong by the nav with whom we are flying and not try to teach him or show him any new or different techniques. Pilots and boom operators are glad when they get to fly with an instructor. They get a chance to increase their knowledge of aircraft systems and to play the old "what if" game.

Each unit could establish a program for their instructors to use in preparing for their flights. For example, if an instructor is flying with an inexperienced navigator or one who has just arrived on station, then the instructor should be concerned with explaining the local area to the individual, such things as the departure, radar targets and the air refueling tracks most used by the unit. If an instructor is flying with an experienced navigator, or better yet another instructor, then he can demonstrate different techniques or fly in a degraded mode. The program that each unit sets up can have different profiles or lesson plans structured for that base's mission requirements. The accomplishments of this are twofold. The instructor maintains his level of enthusiasm and keeps himself sharp. The navigator in the seat is, hopefully, looking forward to flying with an instructor so that he can increase his knowledge and sharpen his navigational skills.

Units should not limit themselves by utilizing the instructor navigator for inflight instruction only. They can also use the instructor for celestial training devices, hangar flying and nav seminars. One of the worst things that a unit can do is not use the resources available to them, especially when flying time seems to be at a premium.

# AFSATCOM for the Novice

TSgt Jim Davis
SSgt Jim Jackson
93 BMW, Castle AFB

Have you ever heard the terms time slot, sync code, or random access? If not, and you are assigned to an aircraft which carries the Air Force Satellite Communication System (AFSATCOM) then read on as this article was written for you.

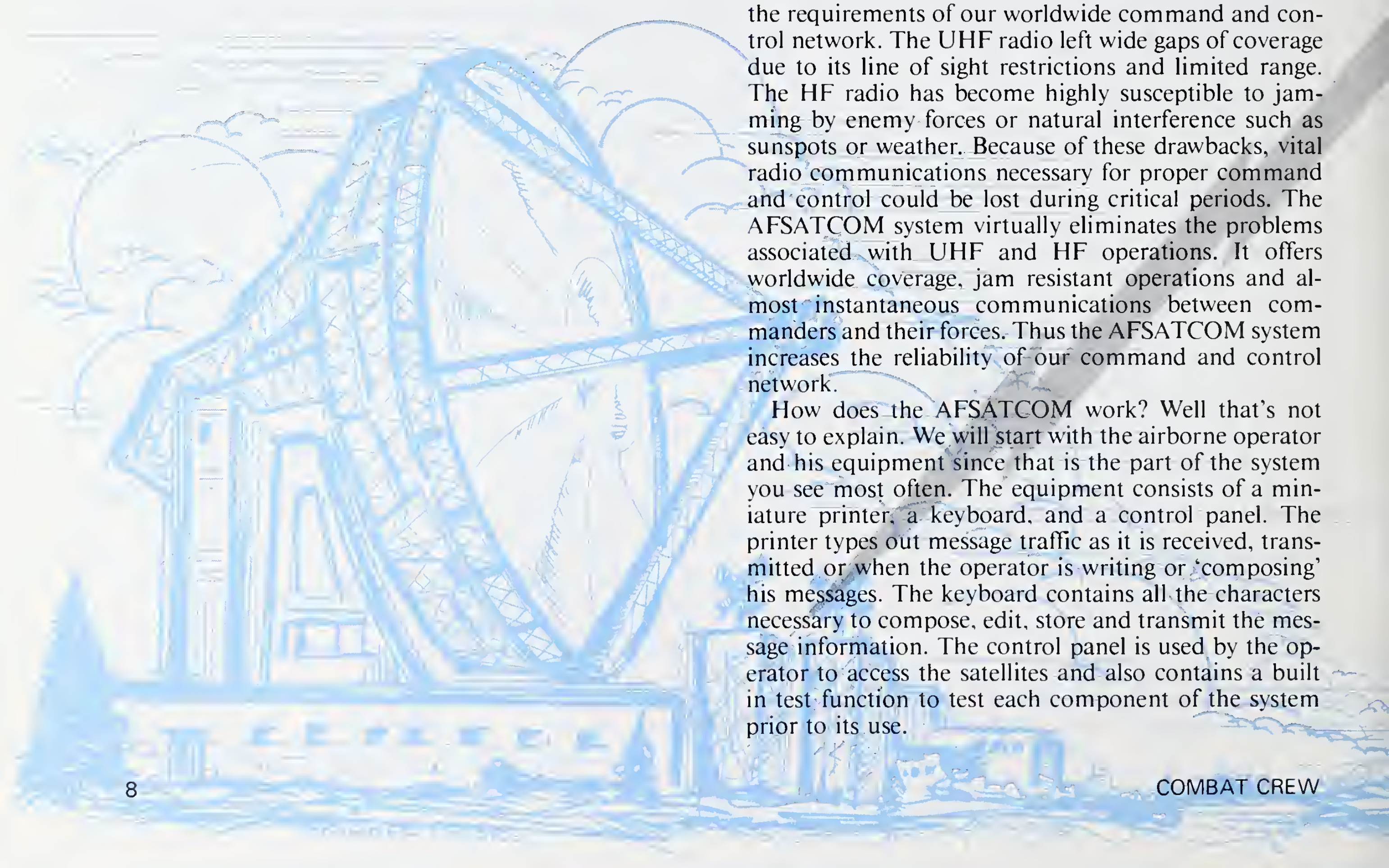
As the AFSATCOM network becomes fully operational it is vital that all crewmembers become familiar with its uses. While we cannot provide you with an indepth description of its operations because of space and security restrictions, we can try and answer the questions most often asked about this communications system.

First, what is AFSATCOM? The AFSATCOM system is made up of three main elements, the airborne terminals, the ground terminals, and of course the satellites. The airborne terminals have the capability to transmit and receive teletype information to and from whoever is in control of the network. The control of the network can be assumed by any of several command stations which can either be airborne or ground based.

Currently, airborne terminals are installed in B-52, EC/RC-135, FB-111, E-3A, and the KC-10 aircraft. If you happen to be assigned to one of these aircraft, perhaps you should read more closely. Ground based terminals are located in fixed or mobile command centers throughout the world. These terminals operate in much the same manner as the airborne stations except on a much larger scale. The airborne and ground terminals are linked together by the satellites which are located in various polar and equatorial orbits. The satellite orbits are arranged in such a manner as to provide us with a worldwide capability.

Another question that is asked quite often is, "Why do we need satellite communications?" Well, the need for this type of system was first realized when it became apparent that the UHF and HF radios could not meet the requirements of our worldwide command and control network. The UHF radio left wide gaps of coverage due to its line of sight restrictions and limited range. The HF radio has become highly susceptible to jamming by enemy forces or natural interference such as sunspots or weather. Because of these drawbacks, vital radio communications necessary for proper command and control could be lost during critical periods. The AFSATCOM system virtually eliminates the problems associated with UHF and HF operations. It offers worldwide coverage, jam resistant operations and almost instantaneous communications between commanders and their forces. Thus the AFSATCOM system increases the reliability of our command and control network.

How does the AFSATCOM work? Well that's not easy to explain. We will start with the airborne operator and his equipment since that is the part of the system you see most often. The equipment consists of a miniature printer, a keyboard, and a control panel. The printer types out message traffic as it is received, transmitted or when the operator is writing or 'composing' his messages. The keyboard contains all the characters necessary to compose, edit, store and transmit the message information. The control panel is used by the operator to access the satellites and also contains a built in test function to test each component of the system prior to its use.



Now that you have an idea of what units the airborne operator has, we can address how information is transferred from airborne to ground stations. The operators have three ways or 'modes' in which they can communicate. These are the Auto, the Poll, and the Manual transmit modes. When utilizing the Auto transmit mode the operator simply builds or composes the message, stores it in a memory or 'buffer,' and selects the Auto function. The message will stay in the buffer until a predetermined 'Time Slot' occurs, at which time the message is transmitted to the network controller via the satellite. The use of a time slot is necessary because of the number of aircraft using the system. Each aircraft has its own predesignated transmit 'time slot' insuring that no two aircraft are transmitting at the same time. These time slots are controlled by the satellite, not the operator. When utilizing the time slots we are synchronized with the satellite. It is possible to transmit without a time slot (Random Access), however, there is a very good possibility of interfering with other stations and this is not normally used except in an emergency.

When using the Poll mode to transmit, a message is built, stored, and the operator selects the Poll mode. Now the message is sent only when prompted or 'polled' by the net controller. Another way to transmit is by using the manual mode. In this mode the messages are not stored in memory prior to transmission, instead, as each letter on the keyboard is depressed that character is transmitted to the controller. For obvious reasons this mode can only be effectively used in Random Access.

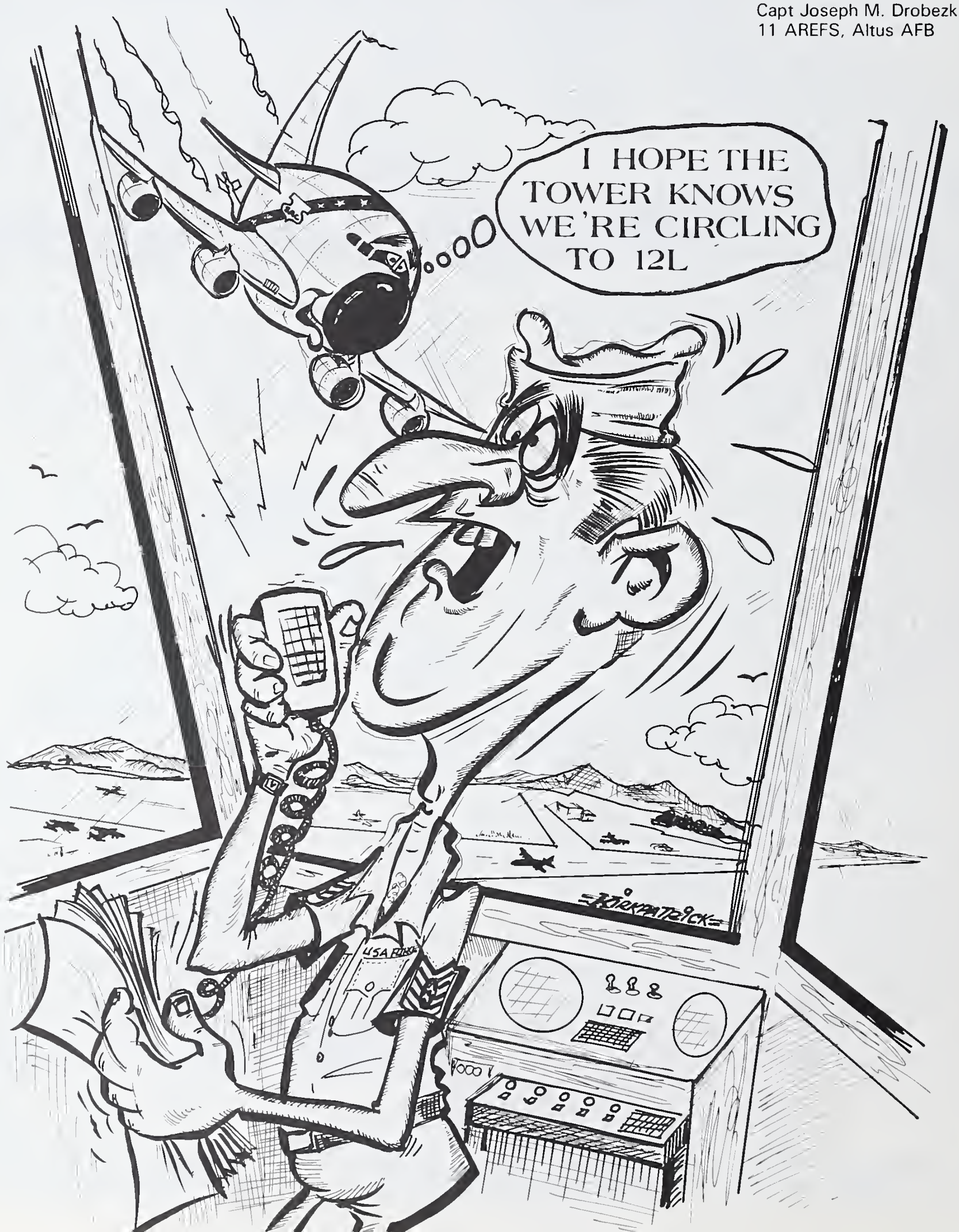
What kind of information is loaded into the control panel in order to make it work? The Control Panel gives the operator access to the satellites provided he has set in the required information prior to transmitting. The operator sets in the transmit and receive frequencies, selects which satellite he will be using, and inserts his designated time slot. He also must load in his 'Sync Code' which is used to synchronize the terminal with the satellite. All this information is usually found in the communications kit and is loaded into the control panel prior to flight.

Why is it the operator must use the UHF radio so often? Parts of the UHF radio are utilized by the SATCOM system and the operator would not be able to transmit or receive without these parts. There are requirements to monitor certain time periods during the flight for incoming messages and the operator is also required by regulation to transmit formatted message traffic such as Airborne and OPS Normal reports.

The future uses of the AFSATCOM system are virtually limitless. Terminals are being added to more and more aircraft every day. The satellite communications system is also currently being expanded to include naval forces and grounds units. You may have noticed that your command post already has or will be receiving a terminal. The more units that have this communications system, the more reliable our command and control network becomes. This is the communications system of the future. Look at it this way the next time your operator asks for the radio. You're not giving up part of your comm equipment, you're accessing one of the most reliable and versatile communications networks in the world. We hope that some of your questions about this system have been answered. If you feel that you need some more information consult your applicable technical order or better yet, see a SATCOM expert . . . your operator. Until next time ETX-ETX.

# How's Your Radio Discipline Good Buddy?

Capt Joseph M. Drobezko
11 AREFS, Altus AFB


I HOPE THE TOWER KNOWS WE'RE CIRCLING TO 12L
KIRKPATRICK

**"Roger Univac 61,** turn heading . . . garble garble."

"Fort Worth Center, you were stepped on. Key up your mike and try it again."

Oh yes, we've all heard the other guy use bad radio discipline and it always is the other guy. But for the sake of discussion, when was the last time (other than undergraduate flight training) that you reviewed radio communications phraseology and technology? Probably as long as the rest of us, so let's do a review of some techniques and terms most frequently used in pilot/controller communications.

The use of good radio communications in the ATC system is very critical. Any misunderstanding between the pilot and controller can spell disaster for the aviator (and others too). To alleviate misunderstandings, it is necessary to use good radio discipline, i.e., pilots acknowledge each radio communication with ATC by your aircraft call sign, keep chatter off the radios, and after you know what you want to do, tell the controller what your request is as briefly as possible. To enhance understanding, use phraseology that is understood and in keeping with standard words or phrases that are used by all pilots/controllers.

## Techniques

Using the aircraft radios can be easier than using a telephone. To insure you are utilizing the radios properly, keep several things in mind.

**1. Listen before you key the mike.**

**2. Make sure you know exactly what you want to say and use standard formats when applicable.**

**3. The microphone should be close to your lips and speak in a normal conversational tone.**

**4. Don't get impatient with the controller. Many times he may be doing other necessary tasks and is in the process of acknowledging your transmission.**

**5. Is your radio working properly? If you don't "hear" anyone on your radio investigate possible reasons for the dreaded silence; wrong frequency, change the squelch, check the volume or check for a possible stuck mike.**

**6. Remember that our UHF and VHF radios are line of sight and the range is limited.**

## Pilot/Controller Glossary

*The following is a list of those terms most frequently used in pilot/controller glossary found in the Airma's Information Manual (AIM). Review these and see how many you would know how to use (you can check your answers with AIM).*

Abeam —
Abort —
Acknowledge —
Advise Intentions —
Affirmative —
Altitude Readout —
Altitude Restrictions are Cancelled —
Approach Speed —
Braking Action —
Chase/Chase Aircraft —
Circle to Runway (Runway Numbered) —
Circling Approach —
Clearance —
Clearance Void if not Off by (time) —
Cleared as Filed —
Cleared for (type of) Approach —
Cleared for Takeoff —
Cleared for the Option —
Cleared Through —
Cleared to Land —
Cleared to UFR —
Contact Approach —
Convective Sigmet/Convective Significant Meteorological Information —
Cross (Fix) at (Altitude) —
Cross (Fix) At or Above (Altitude) —
Cross (Fix) At or Below (Altitude) —
Cruise —
Direct —
Emergency —
Execute Missed Approach —
Expect Departure Clearance (Time)/EDCT —
Expect Further Clearance (Time)/EFC —
Expect Further Clearance Via (Airways, Routes or Fixes) —
Expedite —
Final —
Flight Level —
Glide Slope Intercept Altitude —
Go Ahead —
Go Around —
Have Numbers —
Heavy (aircraft)
Homing —
How Do You Hear Me? —
Ident —
If Feasible, Reduce Speed to (speed) —
If no Transmission Received for (time) —
Immediately —
Increase Speed to (Speed) —
I Say Again —
Maintain —
Make Short Approach —
Mayday —
Missed Approach —
Negative —
Negative Contact —
No Gyro Approach/Vector —
Numerous Targets Vicinity (location) —
On Course —
Out —
Over —
Pilots Discretion —
Radar Contact —
Radar Contact Lost —
Radar Service Terminated —
Read Back —
Reduce Speed to (speed) —
Report —
Request Full Route Clearance/FRC —
Resume Own Navigation —
Roger —
Say Again —
Say Altitude —
Say Heading —
Speak Slower —
Squawk (mode, code, function) —
Stand By —
Stop Altitude Squawk —
Stop Squawk (mode or code) —
Stop Steam/Burst/Buzzer —
Taxi Into Position and Hold —
That is Correct —
(Identification). Traffic Alert. Advise You Turn Left/Right (specific heading if appropriate), and/or — Climb/Descent (specific altitude if appropriate) — Immediately —
Traffic in Sight —
Traffic no Longer a Factor —
Transmitting in the Blind/Blind Transmission —
Unable —
Verify —
Verify Specific Direction of Takeoff (or turns after takeoff) —
VFR on Top —
VFR not Recommended —
Wilco —
Words Twice —

*How did you do? Hopefully this short review of radio phrases and techniques will not only help you fly like a professional but sound like one too.*

# MINEX

> *"SAC had never attempted to fly so many aircraft over a low level target using minimum spacing while dropping inert mines."*

Mines. What does that remind you of, World War II pictures where nervous troops probe with knives through a mine field, or mines that when activated spring up in the air (about three feet high — waist level) and then blow up? How about the classic submarine movie showing a sweating sub crew slowly making its way through a mine field scraping along several chains holding mines? Well, here in the Pacific, mines and mine exercises mean a whole new thing to the 43d Strategic Wing's B-52s. Mines? B-52s? Yes, indeed, B-52s have an aerial mine laying capability and can close an enemy's ports to shipping with their tactics and special operating mines.

The mines are procured and maintained by the Navy. When tasked, the Air Force provides delivery vehicles. These mines do not all explode on initial contact with an enemy vessel like the ones in WWII pictures. Some mines lay dormant until a certain ship comes by that set it off by its size, sound, or by other means. Some mines count the ships going by and after a certain number have passed over it explode in a harbor that the enemy thought was safe.

Yes, these are special mines, but the crews that place them where they belong are special too. It's not easy dropping mines in an enemy's harbor surrounded by mountains using low level tactics in cell with the strict airspeed and track tolerances required.

Let's look at an example. Last spring SAC B-52s participated in the largest joint combined mining exercise in the free world. This exercise was known as Team Spirit 83. A large segment of this Team Spirit exercise was Minex 83. It involved a total of 22 mine laying aircraft including 10 B-52s, both D and G models, Marine A-6Es and A-4s. Other aircraft involved were F-4s, EA-6Bs, F-16s and Korean F-5s. KC-135s and KC-130s provided tanker support.

The planning started in the fall of 82 when SAC decided to really test its mine laying capabilities. Although SAC crews often practice mine laying runs single ship and sometimes in three ship streams, SAC had never attempted to fly so many aircraft over a low level target using minimum spacing while dropping inert mines.

Precision time and track control is fairly simple on a clear day or on a familiar route, however, in this exercise the route was new and the weather was downright uncompromising with icing, thunderstorms, and marginal VFR over the target area. Add a multitude of attacking fighters to the scene and you can quickly see that the crews did a tremendous job providing SAC's mining capabilities. The Minex operation was the largest and finest B-52 low level activity ever witnessed by those present. All the mines released by the 22 aircraft were dropped within four and a half minutes of each other. The lead ship dropped within 10 seconds of their target release time. All mines were on target. Seven B-52D aircraft from the 60 BMS on Andersen AFB and three B-52G aircraft from Barksdale and Robins AFB, refueled by eight Pacific Tanker Task Force KC-135s, led the way and laid the majority of the mines.

Minex 83 was a very challenging exercise from the start. In order to complete this difficult mission, extensive coordination with U.S. and Korean navy, marine air and sea forces had to be accomplished. Long hours and mounds of paperwork were also required to get the aircraft safely airborne and correctly routed. Saturation mining procedures had to be carefully briefed and contingency plans made to cover all situations.

It was a well coordinated effort — from the airborne commander, Col Dudley Moorhous, to the one stripe assistant crew chief. Ten bombers and eight tankers were successfully launched in a 20 minute period. Not since Vietnam has SAC done anything on such a large scale like this from one base.

Minex 83 was a proud accomplishment for SAC. It proved we could fly a tough mission safely in tough weather. However, it takes tough crews to do it. As one famous general put it, **"Fighters may be fun, but bombers win wars."**

Capt James M. Wright
60 BMS, Andersen AFB

# Time to

About this time of the year, because I live north of the Mason-Dixon line, I start combing through the garage looking for the snow shovel — it's probably buried under the lawn chairs, garden hose, lawn sprinkler, etc. — or deciding whether or not to buy new snow tires or wondering if there's any antifreeze left in the radiator of the old buggy. Maybe you are doing the same thing; then again, maybe you are lucky — you live in the sunny southland. But whether we dust off a snow shovel or replace the worn out cushion in the lawn chair, we are probably preparing for days ahead and wishing days past were not over.

As we winterize the old buggy, the house (take down screens; put up storm windows), or turn up the furnace (southlanders just turn off the air conditioning), do we winterize our minds and become weatherwise to the little goodies that Ole Man Winter reserves just for those magnificent men in their flying machines? I mean things like icing, freezing precip, sleet, snow, obscurations, poor visibilities, and even winter thunderstorms — winter thunderstorms?

Does this illuminate the cranium with fond memories or thoughts of, "Boy, I'll never forget when . . .?" Maybe you are ahead of the game and have already started to bone up on winter flying hazards. If not, I invite you to join me in the inner sanctum of the weather guesser to meditate upon seven little lessons you should remember about winter flying weather.

**Watch for the bottom to drop out.** Winter is noted for rapidly moving frontal systems. Conditions change from clear and 10 to below minimums in a few short hours or vice versa. Because frontal systems may move cross-country at 40 knots or more, reported observations and forecasts are very important to you as you flight plan. Clear your flight on forecasts, but verify them enroute with the latest observations. Because terminal conditions can change rapidly, the forecast gives you valuable information for logical decisions. Bear in mind that the sun gives little warming during winter, so fog and stratus lift slowly.

**A jacket on your back is worth two in the locker.** The rapidly moving frontal systems change balmy weather into frigid, bitter cold. When you fly, dress appropriately — it may save your life. You may rely fully on the aircraft heating system, but heating systems do fail. Wear the clothes, footwear, and head gear that you could survive in even during the worst weather and on the coldest day along your flight path.

**Ice is more becoming in your drink than on control surfaces or air intakes.** One of the most fearful winter hazards is ice which may appear in three forms: clear, rime and/or frost, or any moisture thereof. All that you need for ice is freezing temperatures, visible moisture, and freezing nuclei which is triggering action for ice formation (your airplane is a nucleus). Frost looks rather harmless when you see it on your aircraft on a cold winter morning, but let's face it, the bird won't fly with frosted control surfaces.

Icing on the airframe, windshield or air intakes can lead to disaster. If icing is forecast or encountered, apply tech order instructions without hesitation to forestall or get rid of ice formation. If that fails to solve the

# Vinterize

problem, look for a more favorable environment and get there as soon as possible.

**When the forecast "busts," head for the alternate without delay.** Even though forecasts are an important tool when you flight plan, they do "bust" occasionally. The destination forecast may not warrant an alternate, but why not take along a little insurance and have an alternate in mind — maybe even two. FAA Flight Service Stations broadcast weather reports at 15 minutes past each hour. In addition, SIGMETs are broadcast every 15 minutes and AIRMETs every 30 minutes at 15 and 45 minutes past the hour. They are an additional source of information to keep yourself up to date on weather enroute and at destination. If it appears that conditions are marginal, think what Confucius probably once said, "If you don't know, don't go!"

**Beware of X's and precipitation.** When the prevailing visibility drops below seven miles, the observer will report some type of restriction. This is the time for you to rub the sand out of your eyeball sockets and start keeping tuned in on the present weather at Podunk Hollow Air Force Base. Remember that the visibility in precipitation as seen by an observer is much greater than what you see as you squint through the precip splashing over your windshield at 200 knots plus. If an observer can see three miles in precipitation, there may be times you can barely see a mile through your windshiled.

The seeing really gets bad on your part when the observer reports an obscuration (X). You as the flight weary aviator will probably see zilch in the same weather conditions. A partial obscuration (-X) is just a little better than zilch. So prepare yourself and expect the worst when obscurations are reported.

**When snow and ice appear and the crosswinds are blowing, wave off and return another day.** Most winter accidents occur during landing and takeoff. Even under ideal conditions, these phases are crucial times of the operation. Add snow and ice to the runway, accompanied by a breezy crosswind and circumstances are right to generate statistics. You should know your limitations with respect to your aircraft. It is your decision to land or not to land on snow and ice, but don't forget, it's less embarrassing to abort than to climb meekly out of a bent airplane and face the wrath of a commander.

Your friendly pilot to forecaster service is always standing by to offer assistance on all your weather needs. Just give a call; our forecasters are eager to serve you.

**Educate and contemplate, but there's no need to be late or hibernate.** Just don't press your luck. Be eternally vigilant; a little mistake can cause a big accident. Safety is no accident. Be weatherwise to fly safely.

One added thought — winter thunderstorms ahead of and along rapidly moving cold fronts are just as vicious as those in the summer. The hail is just as severe, the up and down drafts are just as strong, the lightning just as bright, and the rain the same intensity — you can't see through it. They deserve your respect, so avoid them as if they carried plague germs.

An ounce of prevention is worth a pound of cure, so bone up on the flying hazards of Ole Man Winter, and you will live to fly another year.

# ICAO LOW ALTITUDE I.A.P.'s

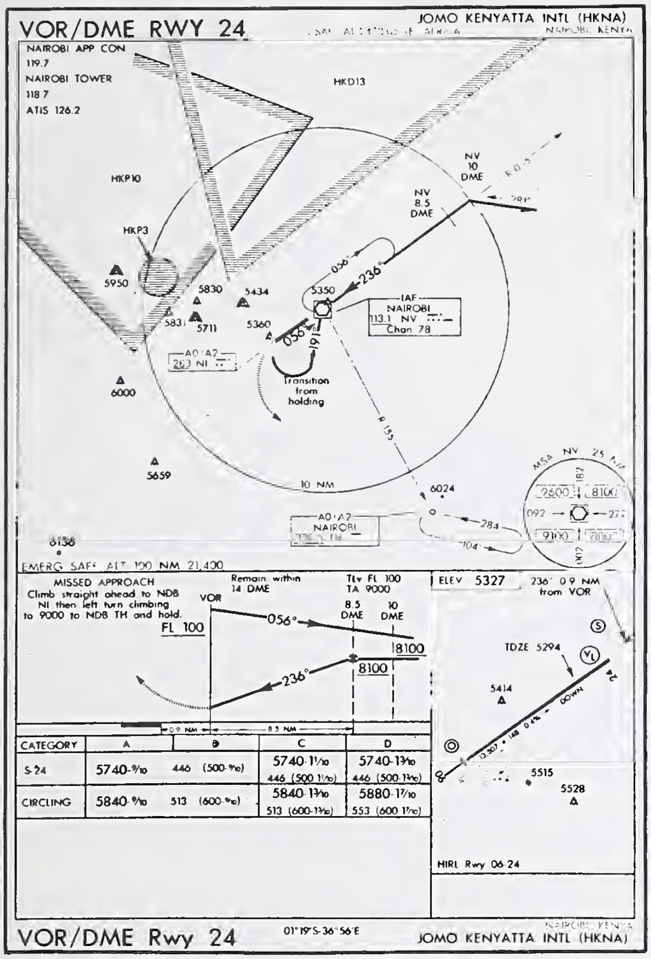
Imagine yourself established in the holding pattern at Jomo Kenyatta Intl. (fig 1). Upon receiving an approach clearance, how would you execute the approach? The 'obvious' answer is to execute the published transition from holding and upon arriving at the VOR on the 056 degree course, teardrop on the depicted side IAW AFM 51-37. That's exactly what a MAC crew recently did, whereupon the Kenya Aviation authorities severely chastized our fellow aviators! The procedures the aircrew flew were in compliance with AFM 51-37; unfortunately the Kenya Aviation authorities were not familiar with AFM 51-37 nor were they interested in obtaining a gratis copy. The discrepancy between our procedures and what was expected can be attributed to a recent change to ICAO I.A.P. (Instrument Approach Procedure) design and a corresponding change in pilot procedures.

The vast majority of ICAO member nations design their I.A.P.'s using ICAO criteria found in "Procedures for Air Navigation Services — Operations" (PANS OPS). In the U.S., however, we design I.A.P.'s using criteria from AFM 55-9; more commonly called TERPS. Although TERPS and PANS OPS are very similar, obstacle clearance criteria, course reversal maneuvers, and pilot procedures are slightly different. Herein lies the crux of the problem; AFM 51-37 pilot procedures are predicated on TERPS design criteria and fail to address ICAO PANS OPS procedures.

By now your unit should have received Headquarters Air Force policy letter dated 5 Apr 83, addressing I.A.P.'s in ICAO member nations (check with training flight or base instrument school). Feedback from SIFC classes and telephone conversations with SIFC graduates indicate there is significant confusion on where and exactly how to apply the ICAO procedures outlined in the letter. The remainder of this article will answer the two major questions SIFC has received. No attempt will be made to reiterate all the procedures outlined in the 5 Apr 83 letter.

**Q.** Where should we apply ICAO procedures?

Maj Richard D. Williams
93 BMW, Castle AFB

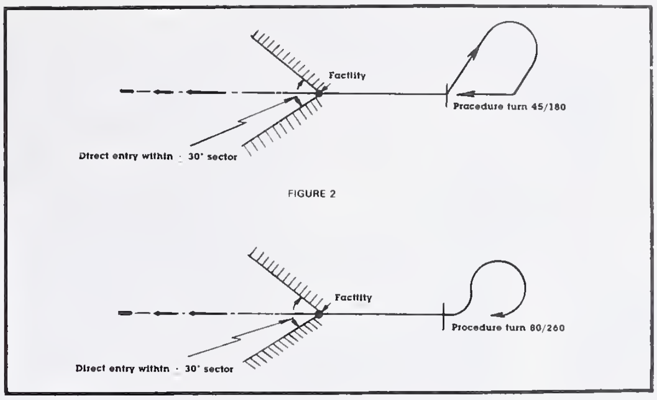


A. This is easy. ICAO procedures must be flown at all airfields outside FAA jurisdiction because there may be variations from U.S. criteria. FAA jurisdiction is essentially the 50 states, the Honolulu FIR, Samoa, Puerto Rico, and the U.S. Virgin Islands.

**Q.** How should we apply the procedures?

The best way to tackle this question is to review the alignment maneuvers (procedure turn, etc.) recognized by ICAO. The new addition of PANS OPS authorizes two course reversal maneuvers as well as a racetrack procedure to transition from the initial segment to the intermediate or final approach segment. The course reversal procedures include the 45/180 or 80/260 Procedure Turns, and the Base Turn. (Don't stop now, keep reading!)

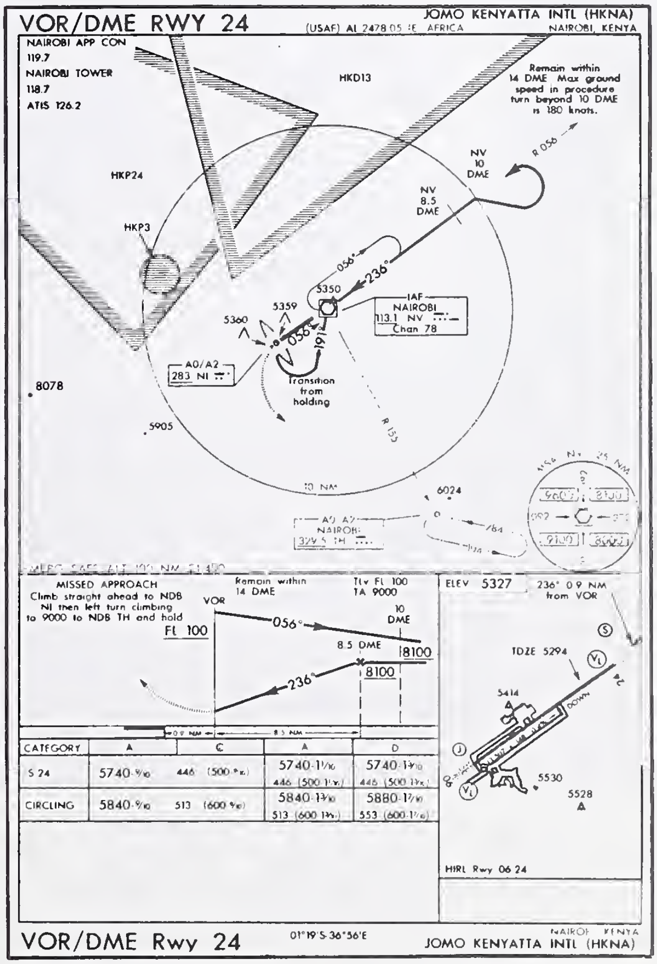
**1. Procedure Turns:** Design criteria and pilot procedures for procedure turns were affected most by the change to PANS OPS. Procedure turns now require the aircraft to enter the maneuver within a 30 degree heading of the outbound course. Additionally, some procedures may now depict a specific point to begin the course reversal turn (fig 2). With the 30 degree entry sector and a specified turn point, the ICAO procedure turn is, for all practical purposes, a procedural track; i.e. you must follow the depicted flight path. The 45/180 and the 80/260 procedures are two possible procedure turn flight paths and must be flown as shown in figure 2.



Facility
Procedure turn 45/180
Direct entry within · 30° sector
Facility
Procedure turn 80/260
Direct entry within · 30° sector

FIGURE 2

Unfortunately past DOD charting procedures were not necessarily in line with ICAO charting. Basically, a bit of artistic license was applied and all 45/180 procedure turns were depicted using the familiar barb. The barb, however, fails to identify exactly how the maneuver should be accomplished (required flight path) and poorly depicts a mandatory turn initiation point. Couple this with specific AFM 51-37 instructions to disregard the barb headings, and you can see why the MAC crew thought they had done everything correctly. This DOD charting problem is being rectified by reviewing all DOD overseas I.A.P.s for incorrect depictions. DOD approach plates will now depict the 45/180 procedure



VOR/DME RWY 24
(USAF) AL 2478.05 .E AFRICA
JOMO KENYATTA INTL (HKNA)
NAIROBI, KENYA
NAIROBI APP CON 119.7
NAIROBI TOWER 118.7
ATIS 126.2
HKD13
Remain within 14 DME Max ground speed in procedure turn beyond 10 DME is 180 knots.
HKP24
HKP3
NV 10 DME
NV 8.5 DME
IAF NAIROBI 113.1 NV Chan 78
A0/A2 283 NI
Transition from holding
MISSED APPROACH Climb straight ahead to NDB NI then left turn climbing to 9000 to NDB TH and hold
Remain within 14 DME
Tlv FL 100 TA 9000
ELEV 5327
TDZE 5294
CATEGORY
S-24
CIRCLING
HIRL Rwy 06-24
VOR/DME Rwy 24
01°19'S-36°56'E
JOMO KENYATTA INTL (HKNA)

exactly as submitted by the foreign nation and USAF pilots are expected to fly the procedures as shown (fig 3).

But wait! The correct depictions will not magically appear in approach books overnight. Until a comprehensive review is completed and approach plates are updated, it will be **your** responsibility to properly interpret and fly these new procedures. This should not be difficult; anytime you see a procedure turn depicted with a barb, fly it using the 45/180 procedures (use barb headings). Check the plan view carefully to see if a specific fix is depicted to begin the 45/180 maneuver (fig 1, NV 10 DME). If a specific fix is not depicted, begin the 45/180 at your discretion to remain within the specified distance. For category D & E time for 45 seconds on the 45 degree leg prior to turning inbound.

The 80/260 procedure turns have been depicted correctly and should not present any problems. They are not used extensively, however, some may be found in the Australia/New Zealand area.

A common question is how much airspace does it take to accomplish ICAO procedure turns? An excellent technique to approximate the distance required for course reversal at various airspeeds is to triple your turn radius for the 80/260 or to triple your turn radius and add one mile for the 45/180. Figure 4 shows the amount of airspace required to execute both maneuvers using 240 KTAS and starting the turn one minute outbound. Applying the technique, 240 KTAS is approximately .4 mach. Our turn radius for a 30 degree bank turn is mach squared or 1.6 miles. Triple 1.6 and we need 4.8 miles for an 80/260 maneuver. For comparative purposes, figure 4 also shows the amount of airspace required for a 30 degree teardrop.

FIGURE 4

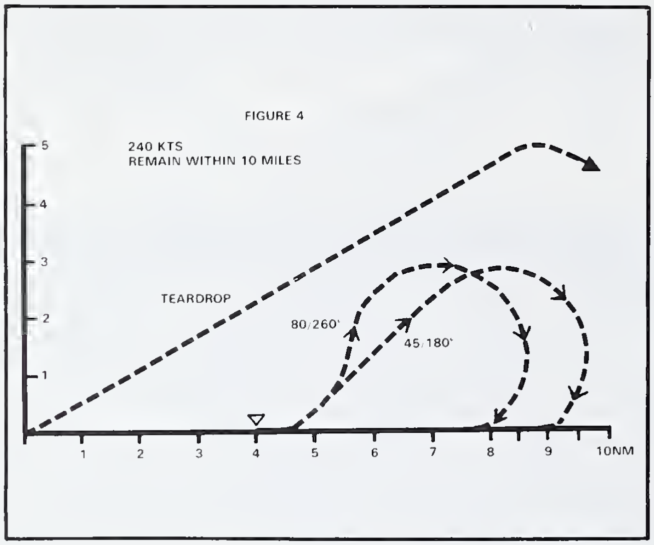


FIGURE 5

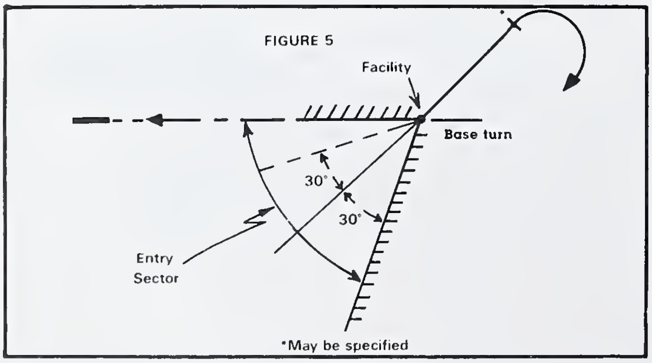
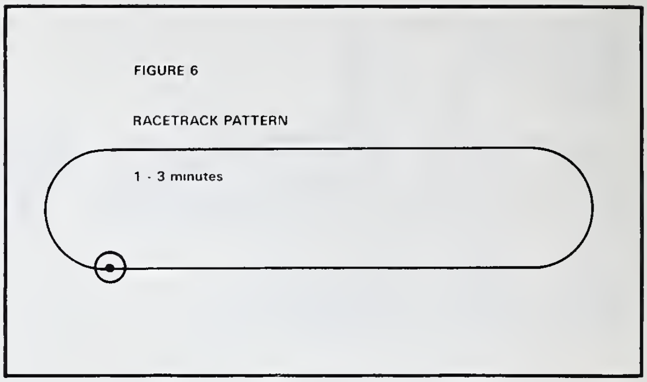


FIGURE 6

RACETRACK PATTERN



**2. Base Turn:** A base turn course reversal is nothing more than another name for a teardrop procedural track. The only major difference is the entry sector is limited to 30 degrees either side of the outbound reversal track. Where the 30 degree sector does not include the reciprocal of the inbound track, the entry sector is expanded to include it. As in the procedure turn, the point where the inbound turn can be initiated may be specified (fig 5).

Remember, all course reversals require you to begin the maneuver within the 30 degree sector (may be slightly larger on base turns). Some approaches (Jomo Kenyatta Intl.) depict a transition to begin the approach. If your arrival track is not within the entry sector, request maneuvering airspace to align yourself within the entry sector (alignment maneuver).

**3. Racetrack:** The racetrack procedure is the ICAO designation for what we call a holding in-lieu-of procedure turn. With few exceptions, the procedures for flying the two are identical (fig 6).

You are probably now asking yourself why are we not losing airplanes if our procedures are incorrect? That's because prior to an approach appearing in DOD publications, it is checked against TERPS criteria to ensure adequate **obstacle** clearance. By using AFM 51-37 procedures you have adequate **obstacle** clearance, however, you may not remain within the prescribed **airspace.**

A. So, what's the answer to how do we apply the procedures? Fly as depicted except in the case of the barb, then fly it as a 45/180 procedure turn.

In summary, the primary change was in procedure turns. The PANS OPS change now requires procedure turns to be flown as procedural tracks. This affects a very small number of I.A.P.s and will probably have minimal impact on normal day to day SAC operations. However, for those of you operating overseas or planning to go TDY overseas, be prepared to fly the ICAO course reversals. If you have any further questions, ask one of your unit SIFC graduates or give SIFC a call.

# THE REAL PILOT . . .

Friday evening, 1630 hrs — this is the time when Eagles (real pilots) flock to the back room bar and the turkeys migrate to the security of their nests. Image is important to the real pilot and he must impress upon his peers from the moment he struts into the bar that he is made of the "right stuff"! This requires all flight suit pocket zippers to open; the leg pockets must be full of let-down charts and pubs, with those kid leather flying gloves showing just above the zippers. It is important to have the front zipper 50% open passing that visual message to others that you are still a little warm from the last low level mission "down in the weeds" — it's important to remember that it's the turkeys and chickens that only "get down in the trees". A cheap cigar is always a positive touch — even if you don't smoke, let it hang casually below your full mustache (a must for image and goes well with a DFC). The mustache and cigar should be surrounded by a facial imprint of your oxygen mask, whether you have been flying or not.

Sleeves should be rolled or pulled up to just below the elbow, this indicates a willingness to "mix it up" if someone should suggest you're exaggerating while telling your favorite "war story". Some older pilots are still leaving their collars up to indicate their masculinity; however, this is strictly passé and uncool — so go with the sleeves rather than the collars. The sleeves "up" also allow freedom when expressing visual formation effects rather than having #2 disappear up your sleeve — definite loss of impact at the critical moment.

Don't forget that small yellow common screwdriver, displayed daringly in lieu of a pen or pencil — tool control is a groundcrew problem. Everyone now knows that you reset your "G" meter, adjusted the VSI and set the sub-scale on your altimeter. They also are quickly aware that you don't have to write things down to remember them — your mind is a steel trap.

You're about ready to step through those swinging doors. Place the hands in a loose trail position (line astern is liable to miss one door) and sharply make contact with both swinging doors (if the doors open toward you omit this move) strutting in confidently behind your formation. Next issue "How to Act at the Bar". By the way, anything I missed on the preparation?

**This is the first article in a series, "The Real Pilot," published by our friends to the north in *Flight Comment* magazine. The author is Captain Steve Gallimore, CAF.**

# HOW WOULD YOU RESPOND?

Capt Arthur E. Baer Jr
4315 CCTS, Vandenberg AFB

**Integrity: Adherence to moral and ethical principles; soundness of moral character; honesty. (Random House College Dictionary)**

Everyone has it but does everyone use it? If you asked 100 missile crew members whether or not they are honest, all would answer in the affirmative. But, if you placed these same individuals in a situation where they had to make an ethical decision, the outcome might be less than ideal. Too often integrity is a convenience rather than a necessity. The specific situation you're in must never cause you to lower your standards as an Air Force professional. Examine the two potential situations listed below. Consider the possible decisions and ramifications associated with each. How would you respond?

- Your responsibility today as a wing evaluator is to evaluate the performance of a missile combat crew in the missile procedures trainer (MPT). The missile combat crew commander (MCCC) is your best friend and neighbor. During the three hour MPT evaluation ride the commander forgets to make a critical phone call. You note the deficiency, but now after the ride you are debating with yourself whether you should award an error. The commander is your best friend and is going through a very rough family situation. The error could keep him out of the instructor shop and it might ruin your friendship. What do you do?
- In your position as the squadron personnel reliability program (PRP) monitor you review all the personnel reliability certificates (AF Form 286). Today, while going over the 286 for a recently decertified crewmember you notice that it hasn't been signed by the former squadron commander. He retired yesterday and left for Hawaii. The new squadron commander is a hard-nosed administrator who wants everything done by the book. Do you go ahead and sign the old commander's name (very simple and no one will ever know) or do you go to the commander and tell him you did not discover the missing signature during your last review? What do you do?

"Too often integrity is a convenience rather than a necessity."

In both situations your integrity as a professional is tested. Do you take the easy way out by giving your friend the benefit of the doubt or do you honestly carry out your responsibilities and award the error? In your position as the squadron PRP monitor, will you cover up the mistake or point it out? Questions similar to these will arise throughout your Air Force career. How you respond to the pressures and demands associated with your responsibilities as a professional Air Force member will affect your career to a far greater extent then you could possibly realize.

Consider the two cases already mentioned. In the first situation, assume that you do not award the error. You feel pretty good because now your friend will get into the instructor shop and passing his check ride has made it easier for him to deal with his family situation. Everyone is happy and there are no problems. But on his next alert, your friend finds himself in the exact situation he faced in the MPT. Now there is no one to give him the benefit of the doubt. He fails to make the required call. The sortie's alert status is affected and emergency maintenance is delayed. During the investigation following the incident, it's discovered the commander did the same thing during his last evaluation, but you did not award an error. Who is responsible for the incident? The crew commander, or you, the evaluator? In your position as an evaluator, you are certifying to the deputy commander for operations and the wing commander that a crew member is qualified to pull alert. Can you be true to yourself and the Air Force if you fail to carry out your responsibility?

The second situation parallels the first. Once again your moral character is being tested. Your personal beliefs and standards will dictate how you respond. By signing the form you are falsifying official Air Force documents. The consequence of your action could be a less than honorable discharge. On the other hand, by going to the squadron commander and pointing out the error you are accepting the responsibilities of your position. Additionally, you are showing the depth of your moral convictions to everyone in the squadron. Your squadron commander may chew you out, but he will also know that you will not take the easy way out of a difficult situation. For a superior or subordinate to know you are honest and dependable is a truly worthwhile goal for a professional.

Your ability to lead, whether it be just one person or an entire wing, depends on your integrity. Whatever else you establish as your standards, remember your word must be your bond. Gen Jack J. Catton in his article "A Personal Concept of Command," stated, *"For a leader, integrity is the fundamental requirement. Your honesty must be unquestionable, your loyalty to the mission unchallengable, and your moral strength indisputable."* The mission sometimes requires leaders to make tough ethical decisions. Do not try to "soft-soap" your decision. Be honest with people. They will appreciate your honesty and cooperate more fully when they know you are truthful with them. A real leader stands out by the strength of his or her convictions, a strong moral character and by making the hard decisions.

## Aircraft Maintenance

SSgt Richard J. Rabenberg, 55 FMS, Offutt AFB, is SAC Maintenance Airman of the Month. Sgt Rabenberg is always the first to step forward with new ideas which have resulted in significant cost savings. He designed and implemented all steps to modify the RC-135 aircraft electrical vapor cycle machine test stand so that hydraulic VCMs could be tested and repaired. Estimated first year's savings are $60,000. A born troubleshooter, Sgt Rabenberg has been a driving force in improved maintenance. He has performed difficult maintenance actions with a rare systems mastery which has improved support capability. For example, he worked over 24 hours to repair an RC-135 VCM and then deployed overseas with the aircraft to continue repair at the operating location. His untiring efforts enabled the aircraft to meet its first scheduled deployment overseas. In addition to being awarded the Master Technician Award for his consummate mechanical talent, Sgt Rabenberg has recently graduated from NCO Leadership School.

## Missile Maintenance

SrA Charles E. Riggs, 308 SMW, Little Rock AFB, is SAC ICBM Maintenance Airman of the Month. Assigned to the Reentry Vehicle Branch, SrA Riggs is responsible for maintenance, storage and records documentation and is certified on warhead installation/removal, RV assembly/disassembly, and the highly complex limited life component exchange. The 3901 SMES and the SAC IG have both recognized him as a "Professional Performer." Airman Rigg's flawless performance was the reason his munitions team earned 95 percent of the points possible at the 1982 SAC Missile Combat Competition and contributed to the wing bringing home the titles: "Best Maintenance Team in SAC" and "Best Titan Maintenance." He has also received two higher headquarters "Exceptional Performance Certificates" for superior technical knowledge and skill.

# PROFESSIONAL PERFORMERS

# Flying Crew

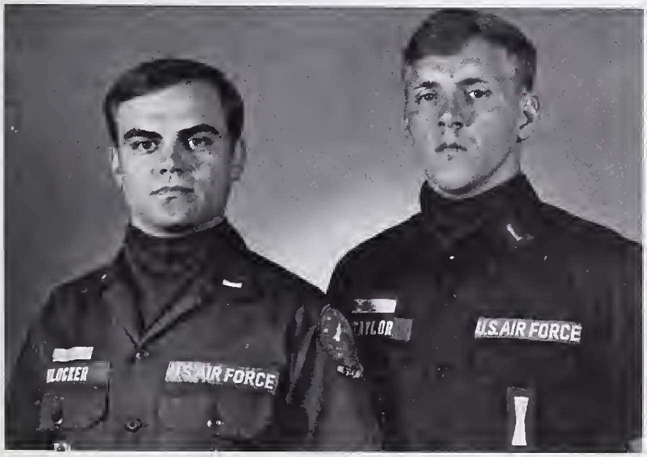
While this B-52 crew were lowering the flaps during an initial penetration to RWY 13 at Castle AFB, the flap indicators revealed that a split flap condition was developing. The flaps were stopped and procedures for chasing the free segment were accomplished. No aircraft rolling was experienced during the initial flap lowering and the IP, Maj Steve E. Smaby, suspected a flap indicator malfunction. While troubleshooting the system, during the second instrument approach, Maj Smaby replaced the suspected flap indicator with the crosswind crab indicator. The flaps were again lowered and the same split flap condition was indicated. However, this time the flap movement was accompanied by a rolling moment of the aircraft, confirming the split flap malfunction. The flaps were raised and the crew proceeded to the low altitude holding fix to develop a game plan. In the holding pattern the No. 5 hydraulic pressure cased the crew to doubt the effectivenes of the aircraft brakes. Due to the flap malfunction, partial pressure in the right hydraulic system and a wet runway condition, the aircraft's landing ground roll exceeded the runway available. Castle Command Post and the local Stan/Eval section confirmed the crew's landing data, and this prompted the DO to divert the aircraft to Ellsworth AFB.

An emergency A/R was coordinated with an airborne KC-135 from Castle. A visual rendezvous was accomplished with the tanker commanded by Capt Mark Johnson. Deteriorating visibility, caused by darkness and worsening weather, and turbulence forced both planes to climb to FL 290. After the required 35,000 pounds of fuel was transferred, Capt Johnson's crew returned to Castle while Maj Smaby's crew proceeded directly to Ellsworth. At Ellsworth, the incident was terminated when Maj Smaby and crew made an uneventful flaps up landing, at night. Aircraft gross weight on landing was 225,000 pounds.

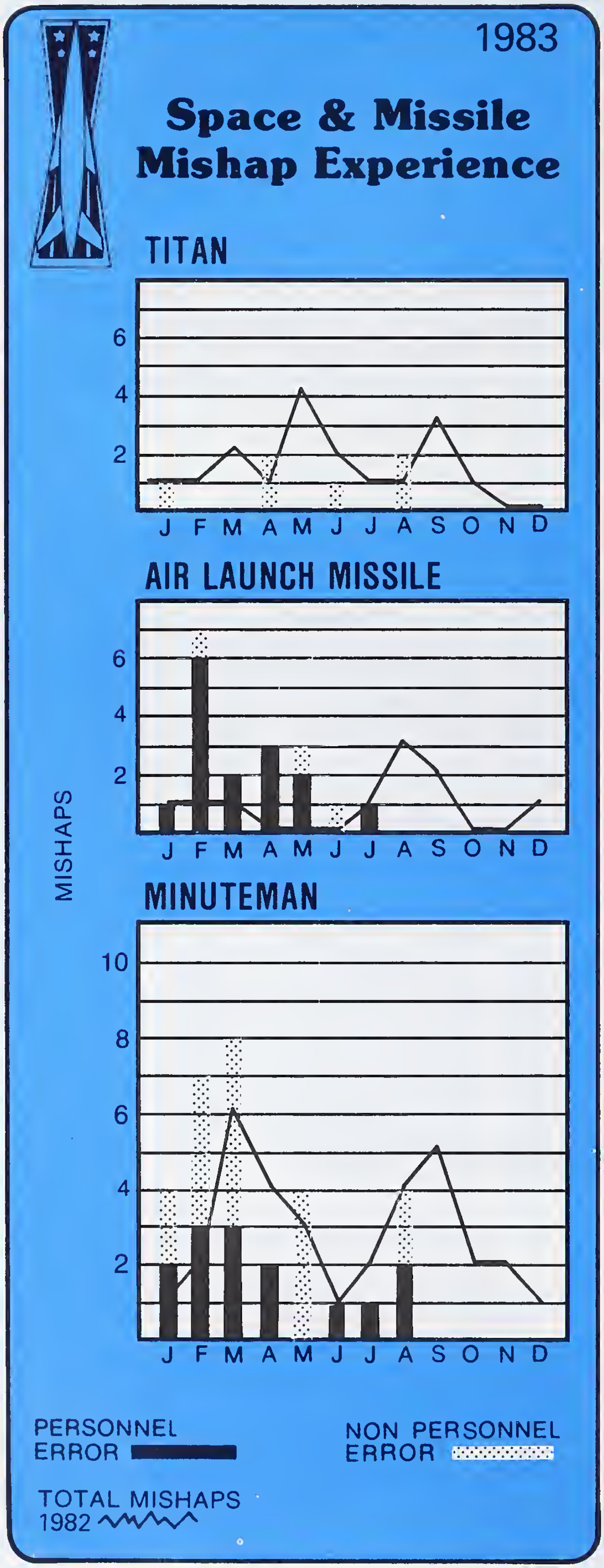
Kneeling, L-R: SSgt John Conner, IG; Capt Richard Roop, IEW; Maj Steve Smaby, IP; Capt Gary Walters, IRN. Standing, L-R: SSgt Dana Blalock, G; 2Lt Rich King, EW; 2Lt Jack Stephenson, N; 2Lt Scott Lovelock, N; 2Lt T. J. Smith, CP; Capt Chuck Hanson, P.

Capt Mark Johnson, IP; Capt James Smith, IN; and TSgt Larry Strong, IBO.

# Missile Crew



The 351 SMW Crew E-164, 1Lt Ronald O. Blocker, MCCC, and 2Lt Glenn M. Taylor, DMCCC, is SAC Missile Crew of the Month. While on alert recently Crew E-164 was challenged during their 24-hour alert tour with controlling a myriad of critical situations. There were three penetrated LFs in their flight areas and seven maintenance teams working on their LCF. In the midst of this demanding task, one of their missiles reported an unexpected loss of status. While quickly working to restore monitoring capability the crew was required to react to multiple emergency action messages and to complete critical targeting hardware off alert procedures. All of these events were only a prelude to the most critical hurdle to yet confront this crew during their hectic alert. Suddenly, the LCC lost vital cooling air to its launch critical components. Executing emergency procedures, the crew quickly confirmed that the emergency air conditioning unit was operating and providing a secondary supply of cooling air to these launch elements. Throughout this array of events, this crew kept the operational capability of their LCC at its pinnacle.



# FAREWELL

**Combat Crew** salutes Col Richard A. Patrick, SAC Deputy Director of Safety in 1978 and the Director of Safety since September 1979. After 30 years of service to the Air Force, Col Patrick is retiring effective 1 October; the command will surely miss him.

The leadership, foresight and ceaseless efforts demonstrated by Col Patrick have resulted in significant contributions to all facets of the safety mission. His sound leadership and superb guidance ensured a thorough safety analysis of the KC-10 and the B-1B. He was also instrumental in establishing headquarters working groups to review key issues in the TITAN II deactivation and dismantlement programs.

These and other numerous safety issues and hazards have been identified and resolved which improved SAC's working environment and weapon systems. The results speak for themselves as SAC was recipient of the Secretary of the Air Force Safety Award in both 1978 and 1982. This award honors the MAJCOM which exhibits the most outstanding safety programs during the award year.

Since 1979, SAC has shown a decrease of ground mishap fatalities, culminating in the lowest number of fatalities in SAC's history during 1982. The direct benefits to the command are a savings in SAC's most important asset — people.

We wish Col and Mrs Patrick godspeed and best wishes in their retirement. Thank you for 30 years of faithful service.

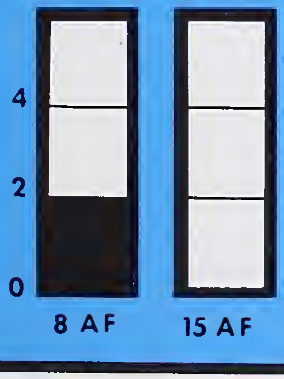
General Bennie L. Davis, commander in chief, SAC, presents the Secretary of the Air Force Safety Award for 1982 to Colonel Richard A. Patrick, SAC Director of Safety.

# SAC'S TEN YEAR FLYING SAFETY RECORD

### CLASS A FLIGHT MISHAPS

| YEAR | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL MISHAPS | 5 | 8 | 4 | 4 | 4 | 1 | 5 | 4 | 4 | 2 | 2 |
| FLYING HOURS 100,000 | 6.1 | 5.1 | 4.2 | 3.9 | 3.7 | 3.6 | 3.6 | 3.4 | 3.5 | 3.5 | 1.9 |
| FATALITIES | 0 | 14 | 7 | 22 | 10 | 5 | 7 | 2 | 14 | 9 | 7 |
| RATE | .82 | 1.6 | 1.0 | 1.0 | 1.1 | .28 | 1.4 | 1.2 | 1.2 | .58 | .65* |

*Estimated Rate based on 310,000 Flying Hours



**25289**

JULY FLYING HOURS

**190694**

1983 FLYING HOURS

| | |
|---|---|
| APRIL | B-52G |
| JUNE | FB-111A |

1983 MISHAP STATS

he Mt. Lemmon facility as seen from an approaching helicopter. The largest portion f the site is underground with the building providing entrance ways.

# "A Great Escape"

SrA William J. Gibson
390 Comm Sq, Davis-Monthan AFB

Imagine sweating in 105 degree heat under the sweltering Arizona sun yet seeing cool green mountain tops all around you in the distance. At times like that one can't help but wish that the Titan II missile sites had been built there instead of being scattered across the desert floor. Luckily for some, however, there is an oasis of coolness on top of one mountain where missile communications personnel can make their "great escape."

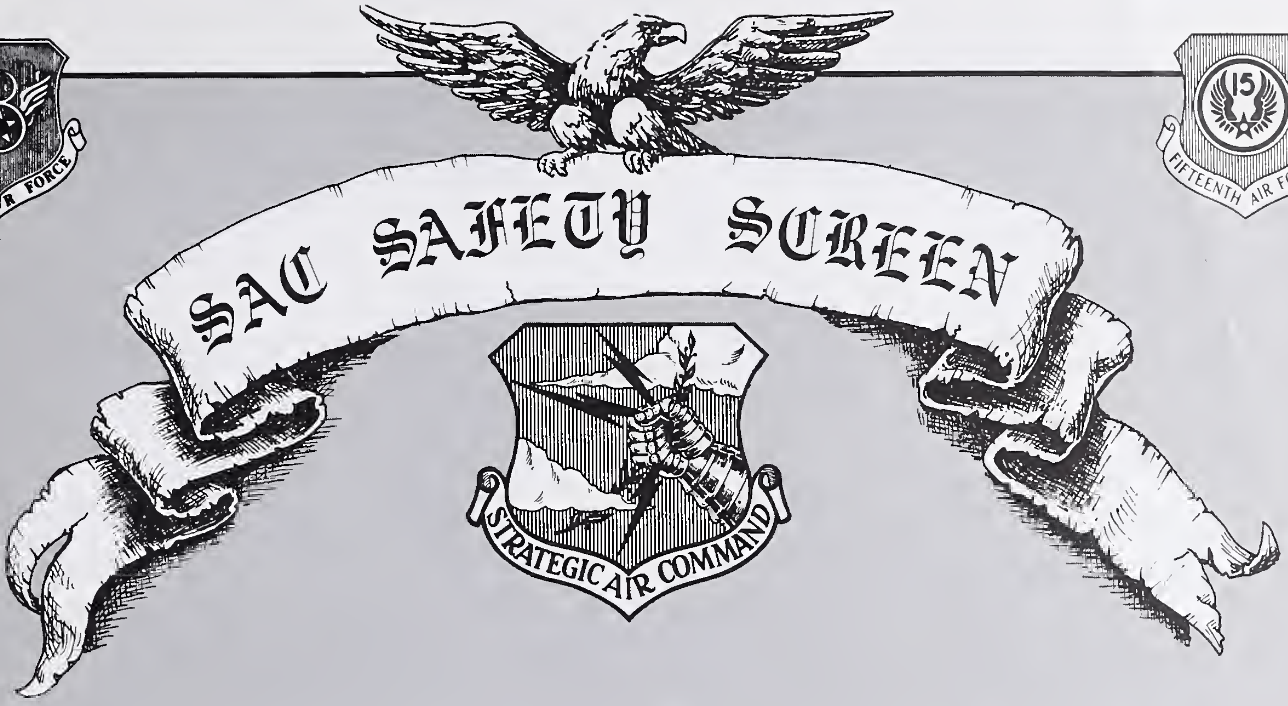
A few select members of the 390 Communications Squadron are able to dispatch regularly to the cool haven of the Mt. Lemmon repeater site, much to the envy of the rest of the squadron. This repeater site is maintained by the Intra-Radio Communications System (IRCS) workcenter whose equipment is the heart of the Titan II communications system.

IRCS is the primary system utilized for communications between all basic launch complexes, alternate command posts and the wing command post. It also provides the primary alerting system and SACCS fast alert messages to all affected complexes and command posts. Originally, IRCS was designed without Mt. Lemmon in mind. But due to the proximity of other mountains, dead spots were created which even blocked radio signals to some basic launch complexes. The end result was approximately 70 percent command and control coverage for the entire IRCS system. The engineers went back to the drawing board and came up with the Mt. Lemmon repeater site as the solution to this complex problem. With the addition of Mt. Lemmon any command post for the Titan II missiles could control all the basic launch complexes 100 percent of the time if necessary.

The Mt. Lemmon repeater site is really an old Atlas missile capsule converted into a separate underground facility to accommodate the communications needs of the Titan II missile system. Another facility located at the site is the intrabase radio repeater. During a Disaster Preparedness Exercise and actual emergencies this net is taken over as the primary means of communications. Our sister squadron, the 1903 Communications Squadron, also has a small facility housing the communications equipment for links between Davis-Monthan AFB and nearby Luke and Williams AFB.

Perhaps the most interesting thing about the Mt. Lemmon site is the fact that duty at the site once qualified as a remote assignment. As a remote site, it was complete with dormitory and chow hall. It also had its own small electric generator for backup emergency power. Due to its close proximity to Tucson and the beautiful surroundings, this remote was highly sought after.

During the winter months, Mt. Lemmon becomes a haven for ski enthusiasts and members of the IRCS work center are even more envied. They are constantly plied for first-hand ski reports and road conditions. The 30 mile road leading from the base of the mountains to the top of Mt. Lemmon is a treacherous winding two lane road that usually drops to one lane during winter storms. This road has been rated as the most hazardous road in Arizona by the State Highway Department. During the winter months the ice and snow make the scenery very beautiful but the drive becomes very dangerous. When this happens, the teams going to Mt. Lemmon get helicopter support and are dropped off at a helicopter pad just outside the gate to the repeater site. When the weather is too bad for helicopters the teams must take to the road in their parkas and 4-wheel drive truck with chains. Even when the road is closed to other traffic, the team is allowed to continue on in the ice and snow because of their important mission. But what makes it all worthwhile is a safe return with a truck load of snow for the whole squadron to enjoy. This snow is usually dumped on the loading dock as a reminder of the existence of that white stuff since it is very rarely seen in Tucson. Perhaps the worst part of the job is that there have been occasions when a team has been stranded up at the site after a sudden snow storm and had to wait it out, but that is a small price to pay for a **"great escape."**



# SAC SAFETY SCREEN

**596 BMS, Barksdale Crew R-83:** P Capt Gregory D Flierl, CP 1Lt Rodney L Horn, RN Capt William A Glushko, N 1Lt Jeffery G Mays, EW 1Lt Peter R Keck, AG A1C Robert F Yelverton

**596 BMS, Barksdale Crew S-51:** IP Maj Lester A Sliter, IP Capt Wendell L Griffin, IRN Capt Richard E Lumpkin, IN 1Lt Rafael Frontaura, IEW Capt Shane C Hedlund, AG MSgt James E Howell

**32 AREFS, Barksdale Crew:** IP Capt Kelly B Collins, CP Capt John L Furr, IFE MSgt Clarence T Bridges, IBO MSgt Hubert R Driskill

**7 AREFS, Carswell Crew S-101:** IP Capt James A Alsop, ICP 1Lt James A Gregory, IN Capt David T Crouser, IB TSgt John R Hackworth

**9 BMS, Carswell Crew E-74:** IP Maj Glenn W Southerland, CP Capt John W Edens, CP Capt David W Alvis, RN Capt Joseph C Howard, N 2Lt Eric S Ford, IEW Capt Stephen G Geppart, G Sgt Thomas E Bausom

**20 BMS, Carswell Crew E-13:** P Capt Stephen E Wright, ICP Capt David A Honey, RN Capt Michael L McGuire, NN 1Lt Bradley E Brown, EW 2Lt Mark L Landis, G A1C Paul D Collier

**11 AREFS, Altus Crew R-134:** P Capt Craig A Weibel, CP 1Lt Mitchell C Hargrave, N Capt Michael J Krimmer, BO SrA Randy Stratton

**69 BMS, Loring Crew E-27:** P Capt Jack Watson, CP Capt Alert Vacca, CP 2Lt Dave Hassler, RN Capt Paul Curtis, N 1Lt Stephen Layton, EWO 1Lt William Law, G A1C Brian Taylor

**42 AREFS, Loring Crew R-132:** P Capt Mark R Brown, CP 1Lt Daniel M Gasparovic, N 1Lt John C Hooper, BO Sgt William R Brown

**407 AREFS, Loring Crew R-171:** P Capt Joseph K Costello, CP 2Lt Martin P Doebel, N Capt Donald Woodmansee, BO SSgt David Williams

**380 BMW, Plattsburgh Crew R-15:** P Maj Michael C McMahan, NB Maj Walter J Donegan

**308 SMW, Little Rock Crew E-080:** MCCC Capt John C Thompson, DMCCC 2Lt Deborah R Easley, MSAT SSgt Jimmy G Sharp, MFT SrA Charles J Powell

**381 SMW, McConnell Crew R-162:** MCCC 1Lt Ronald A Grace, DMCCC 2Lt George E Arnold, MSAT A1C John O Deaver, MFT A1C James R Chlebus

**321 SMW, Grand Forks Crew E-031:** MCCC 1Lt Phillip Harris, DMCCC 2Lt Michael J Sohnly

**44 SMW, Ellsworth Crew R-011:** MCCC 2Lt Ivan Nunez-Barriero, DMCCC Capt Albert D Enslen

**90 SMW, F E Warren Crew R-079:** MCCC 1Lt John Eggeman, DMCCC 2Lt Joe King

**91 SMW, Minot Crew S-021:** MCCC Capt James Y Allen, DMCCC 2Lt Timothy P Flanders

**341 SMW, Malmstrom Crew R-120:** MCCC 1Lt James V Bishop, DMCCC 2Lt Kirk H Pridell

**390 SMW, Davis Monthan Crew R-132:** MCCC 1Lt Marvin Guymon, DMCCC 2Lt Harold Chew, MSAT A1C Tony Koenig, MFT A1C Robert Kleine

**78 AREFS (AFRES), Barksdale Crew:** P Capt Richard A Fleischman, CP Capt Gary A Harding, FE MSgt Dauphin R Womack, BO TSgt Charles W Younce

**71 AREFS, Barksdale Crew R-132:** IP Maj William L Rhule, P Capt Lee J Douet, CP Capt Blaine P McKinney, N 1Lt Steve A Lee, BO MSgt Johnson Marsalias

**62 BMS, Barksdale Crew E-06:** P Capt Thomas P Bjork, CP Capt Mark H Hint, RN Capt Robert G McNiel, N Capt Gary G Berg, EW 1Lt Gary W Tyner, AG SSgt John V Perry

**62 BMS, Barksdale Crew S-01:** IP Capt Donald G Peregoy, ICP Lt Roy M Conrad, IRN Capt William E Price, IN Lt Charles B Simpson, IEW Capt Warren R Anderson, IAG SSgt Robert P Ethington

**55 SRW, 1 ACCS, Offutt AFB:** IP Maj Jimmie D Jones, P Maj Rodney P Bosserdet, IN Maj Gary L Fodrey, ILE MSgt Robert E Loop, IFE MSgt David A Polke, FT TSgt Kerry F Trunce, IFT TSgt William O'Neal

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